

New Dumfries Hospital

Baseline Monitoring Summary



15 August 2022

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New Dumfries Hospital PFE-CL-2169 Baseline Monitoring Summary

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1. Scheme overview

1.1 Places for Everyone

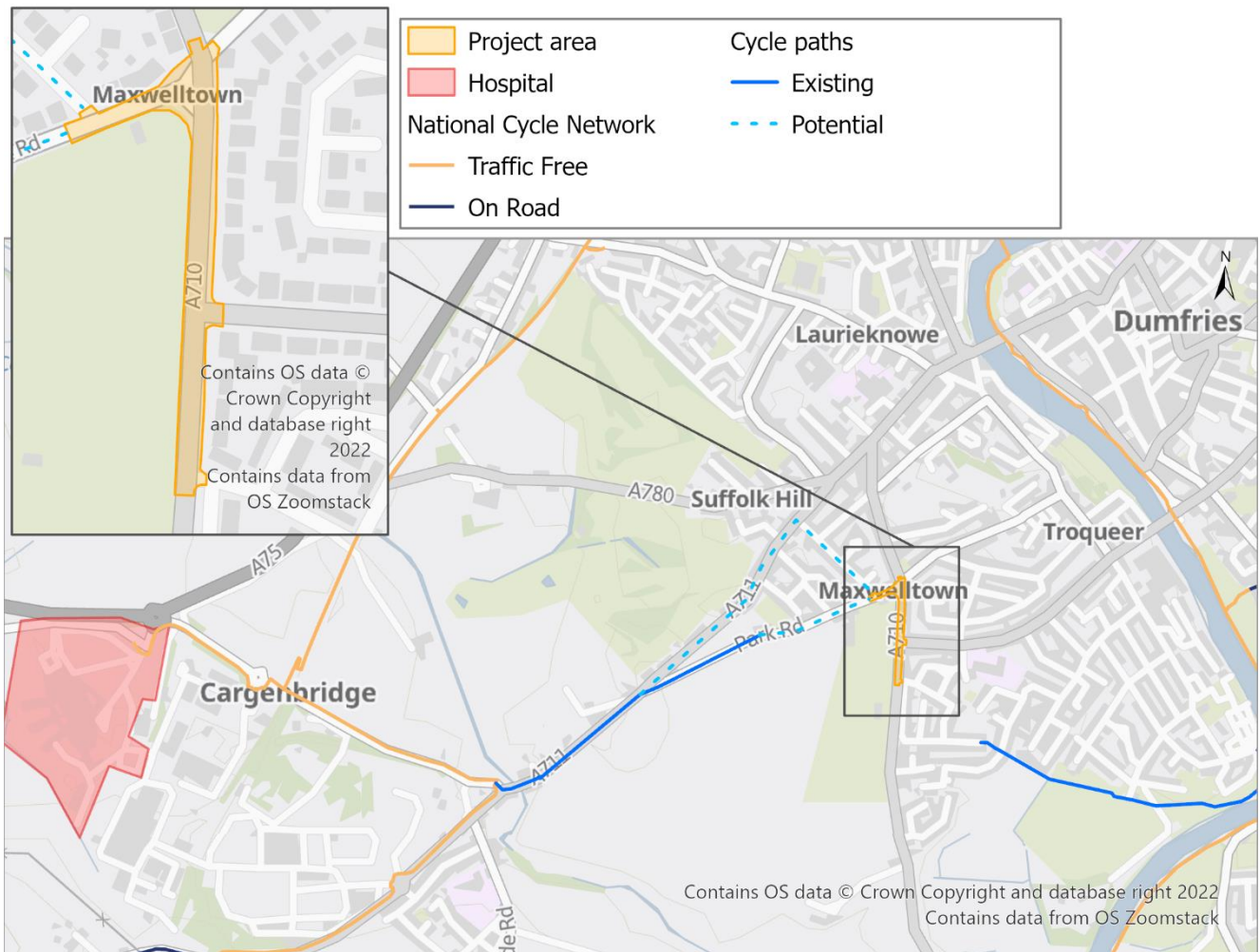
This scheme was funded as part of Places for Everyone (PfE). PfE is a programme of funding and expert support for active travel infrastructure projects in Scotland, administered by Sustrans and funded by Transport Scotland. The aim is to create safe, attractive, healthier places by increasing the number of trips made by walking, wheeling and cycling for everyday journeys.

1.2 Scheme description

Dumfries & Galloway Council (DGC) are delivering this scheme, with support from Sustrans, as part of wider improvements to active travel facilities connected to the development of the new Dumfries & Galloway Royal Infirmary hospital. The scheme aims to promote active travel by creating dedicated walking and cycling infrastructure on New Abbey Road, which lies between the hospital and Dumfries town centre (see location in Figure 1 and diagram in Figure 2). This will improve connections between the Kirkpatrick Macmillan cycle bridge and path in Troqueer and the shared-use pavements in Cargenbridge. The hospital is also connected to National Cycle Network route 7 (the Maxwelltown Railway cycle path), which runs north-south.

Construction is planned for Autumn 2022.

Figure 1 Location of project area and hospital



1.3 Key contacts

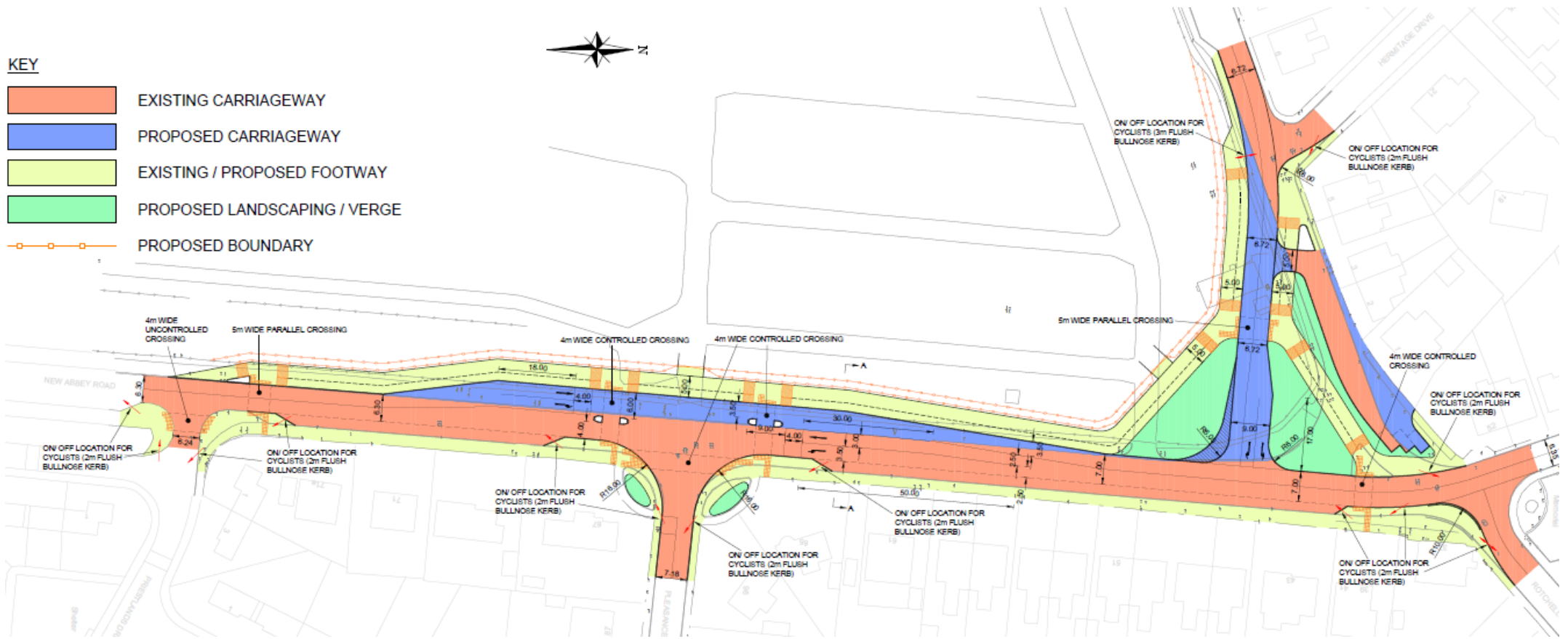
Table 1: Key contacts

Role	Name	Email address
RMU Project Manager	Tom Belcourt-Weir	Tom.belcourt-weir@sustrans.org.uk
RMU Project Director	Jess Acton	Jess.acton@sustrans.org.uk
Project Officer	(Sara Grenni) Katherine Henebry	(Sara.grenni@sustrans.org.uk) Katherine.henebry@sustrans.org.uk
Partner contact	Peter McCormick	Peter.mccormick@dumgal.gov.uk
Lead Organisation	Dumfries & Galloway Council	

Figure 2 Concept diagram (rotated 90 degrees)

KEY

- EXISTING CARRIAGEWAY
- PROPOSED CARRIAGEWAY
- EXISTING / PROPOSED FOOTWAY
- PROPOSED LANDSCAPING / VERGE
- PROPOSED BOUNDARY



Proposals include a new, segregated footpath and cycle path on what is currently grass verge; controlled and uncontrolled crossings in key locations; build-outs at junctions to redistribute space to pedestrians and slow turning vehicles; flush bull-nosed kerbs for cyclists; and landscaping.

2. Monitoring

The Sustrans Research & Monitoring Unit (RMU) are delivering a programme of monitoring¹ before and after creation of the new infrastructure, to measure its impact on active travel. This report presents a summary of the findings at the baseline monitoring stage.

The Sustrans RMU aims to provide evidence on sustainable and active travel that is transparent and authoritative, and which influences and shapes policy, practice, and behaviour in Scotland and across the UK. To this end, the RMU works with Sustrans colleagues and partner organisations to monitor and evaluate the impact of specific projects.

2.1 Outcomes

The intended outcomes of the project from Sustrans are:

1. Increased active travel levels
2. Improve the quality, safety and comfort of the space
3. Increase dedicated space for active travel
4. Improve accessibility

The intended outcomes of the project from DGC are:

1. Rationalise the junction for vehicle movements and efficiency of traffic flows.
2. Increase vehicular capacity of the junction while also reallocating road space to improve provision for cyclists and pedestrians and providing controlled crossings.
3. Create an aspirational design layout with high quality active travel infrastructure for both cyclists and pedestrians.
4. Encourage behavioural change with more people walking and cycling as part of their everyday journeys to work, school, shopping and recreation.
5. Improve connectivity, access for all and equality of opportunity in the public space.

¹ Full details can be found in the Dumfries New Hospital Monitoring Plan

2.2 Monitoring tools

The following monitoring tools will be used to evaluate the scheme against the intended outcomes.

Table 2: Monitoring programme summary table

Monitoring tool	BASELINE				CONSTRUCTION	FOLLOW-UP 2023
	2018	2019	2020	2021		
Active travel counts	✓ (DGC)		✓ (Sustrans)			● (Sustrans)
Crossing behaviour			✓ (Sustrans)			● (Sustrans)
HUSS (Troqueer Primary School)	✓ (Sustrans)	✓ (Sustrans)	✓ (Sustrans)	✓ (Sustrans)		● (Sustrans)

2.2.1 Active travel counts

We **counted active travel journeys** via video footage for seven days, from 7am – 7pm, at five locations where we expect to see an impact from the new infrastructure. These 7-day counts were used to calculate 365-day usage estimates (Annual Usage Estimate), which factor in variations between seasons, school holidays and term-time.

We also counted active travel journeys at Lockerbie Road in Dumfries, which we will monitor as a counterfactual location, to distinguish background trends from the impact of the project. This location will not be affected by the scheme, so it will provide a representation of what will happen to normal, background active travel levels without the presence of the scheme. This will then allow us to attribute impact of the scheme more accurately when we look at active travel levels on New Abbey Road, where the scheme will be built.

In 2018, DGC undertook video monitoring with cameras at six different locations along the scheme area, recording the number of cyclists/pedestrians, the direction of travel, and the age group of users².

² In September 2021, DGC undertook more video counts. However, the dataset contained significant errors and the traffic flows measured bore no relation to observed flows, making it invalid.

2.2.2 Crossing behaviour

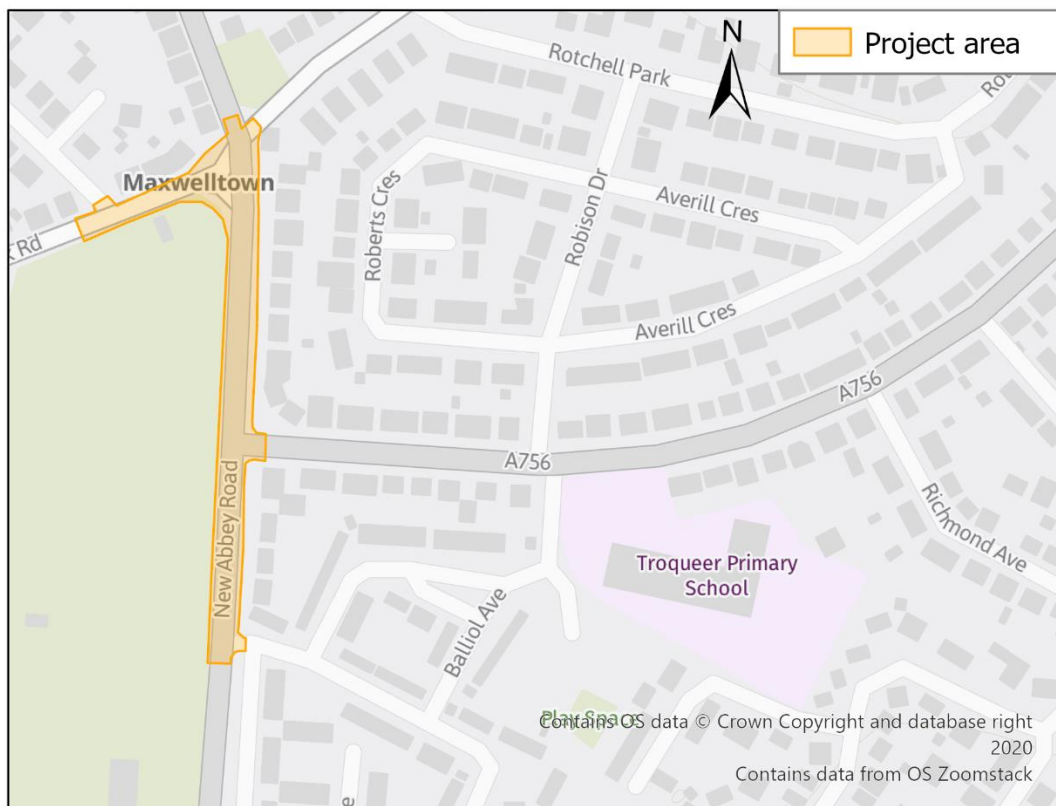
Crossing behaviour was also monitored via the same video footage. A sample of two hours per day was used (one peak and one off-peak, resulting in 14 hours total). We recorded the number of pedestrian crossings, time waiting, whether a vehicle gave way, and whether there was any conflict between road users.

Due to covid-19 restrictions, we were unable to undertake Route User Intercept Surveys, which require face-to-face contact with the public and lengthy staff travel.

2.2.3 HUSS

The Hands Up Scotland Survey (HUSS) is a once-yearly survey of how pupils travel to school across Scotland. Troqueer Primary School is located 200 metres from the project area at the New Abbey Road – Pleasance Avenue junction (see Figure 3). The school participates in the HUSS yearly. This data will be used as supplementary data to track any potential changes in active travel at the school, although we recognise that there may be other factors affecting active travel at the school besides the construction of this scheme.

Figure 3 Map of Troqueer Primary School and project area



3. Baseline findings

This report provides an overview of baseline findings against three of the four Sustrans outcomes (active travel levels, accessibility and quality, safety & comfort of the space). Dedicated space for active travel is currently zero and will be reported on post-construction.

3.1 Active travel levels

3.1.1 Sustrans data (2020)

- We estimate that 213,350 active travel journeys were passing through the Park Road - New Abbey Road junction (site 2) per year at the project's baseline stage. This was the busiest of the five locations we counted at.
- The second busiest site was Pleasance Avenue, followed by Priestlands Drive, Holm Park, and finally the entrance to the new hospital.
- The entrance to the new hospital (site 4) had a high proportion of cyclists (67% of all active travel trips at that location, compared to less than a quarter at other locations).

Figure 4 and Figure 5 show the locations of the count sites. Table 3 presents the seven-day counts, which were used to calculate the Annual Usage Estimates (AUE) in Table 4. Figure 6 graphs the Annual Usage Estimate for each site, broken down by mode.

Figure 4 Active travel count locations

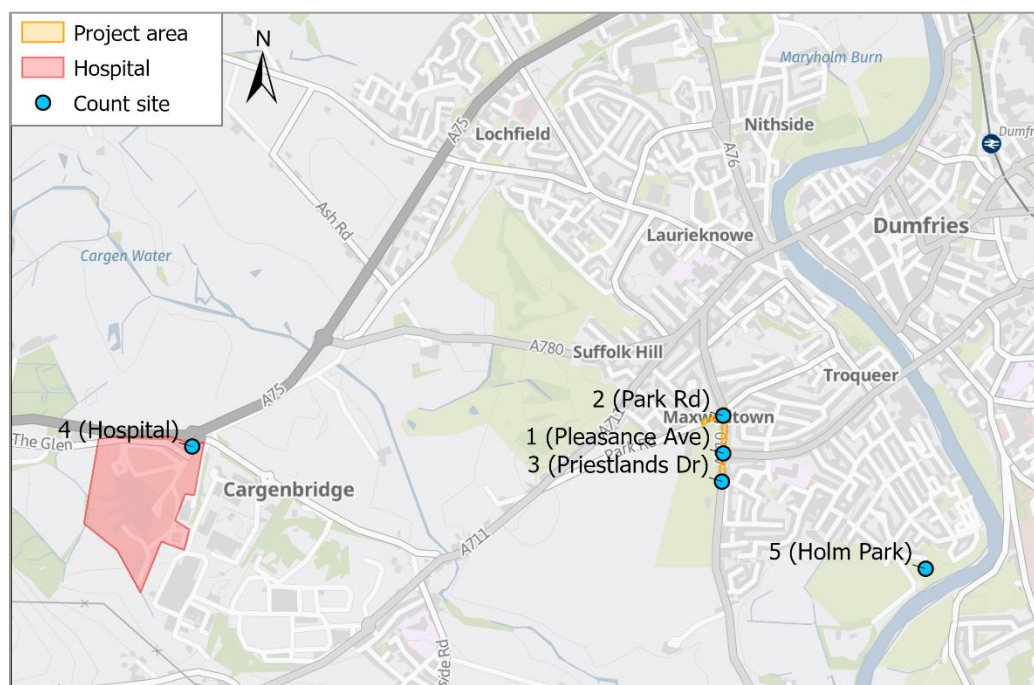


Figure 5 Detailed active travel count locations

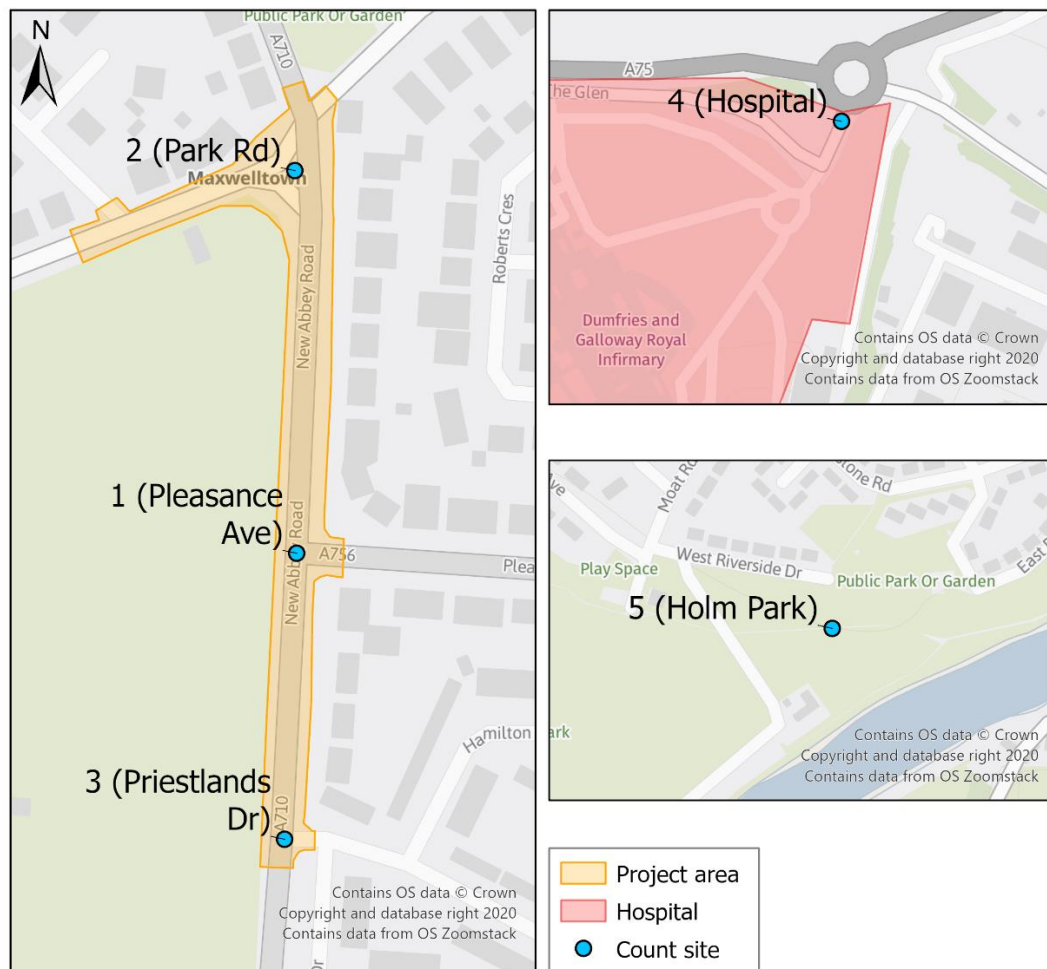


Table 3 Active travel journey counts (7 days, 7am-7pm)

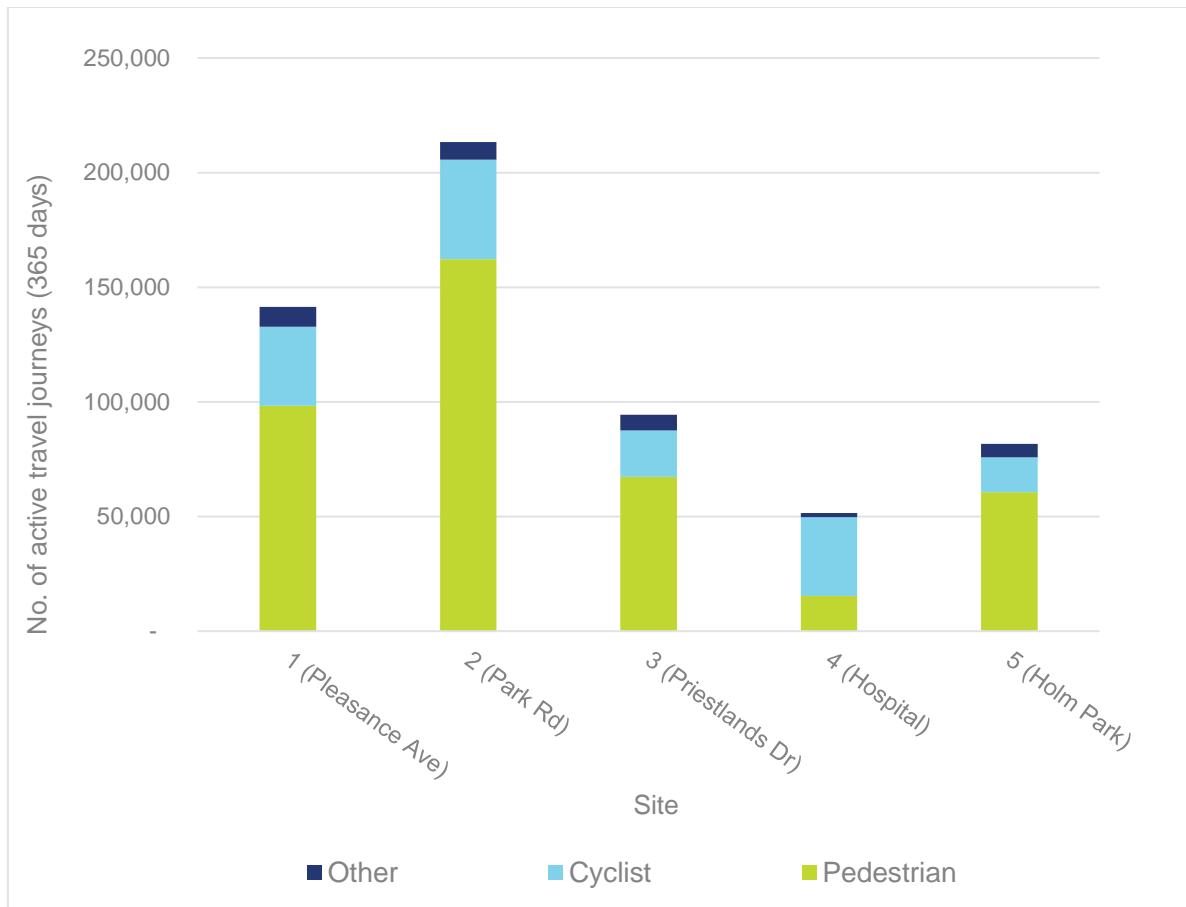
7-day count of active travel journeys				
Site	Pedestrian	Cyclist	Other ³	Total
1 (Pleasance Ave)	1,578	667	139	2,384
2 (Park Rd)	2,604	842	123	3,569
3 (Priestlands Dr)	1,081	391	109	1,581
4 (Hospital)	246	668	28	942
5 (Holm Park)	972	295	94	1,361

³ Other includes wheelchair user, jogger, horse rider, scooter, skating and more

Table 4 Active travel journey counts (365-day estimate)

Annual Usage Estimate of active travel journeys				
Site	Pedestrian	Cyclist	Other	Total
1 (Pleasance Ave)	98,313	34,474	8,660	141,447
2 (Park Rd)	162,204	43,482	7,665	213,350
3 (Priestlands Dr)	67,379	20,224	6,791	94,393
4 (Hospital)	15,321	34,418	1,743	51,483
5 (Holm Park)	60,559	15,218	5,855	81,633

Figure 6 Count of active travel trips, 365-day estimate (from 7 days of data, 7am-7pm)



3.1.2 Comparing Dumfries & Galloway Council data (2018)

Figure 7 and Figure 8 plot the count data collected by DGC in June 2018 (only available for the hours of 08:15-09:15 and 16:30-17:30) alongside the count data collected by Sustrans in August 2020 (during the same hours)⁴. DGC recorded these counts at Pleasance Avenue and Park Road, the same as Site 1 and Site 2 in Sustrans RMU’s research.

There appears to be a small increase in active travel overall between 2018 and 2020. However, this dataset is very small and therefore its reliability is limited.

Figure 7 Count of active travel trips from 08:15-09:15 and 16:30-17:30 on one day, in 2018 and 2020, at Pleasance Avenue

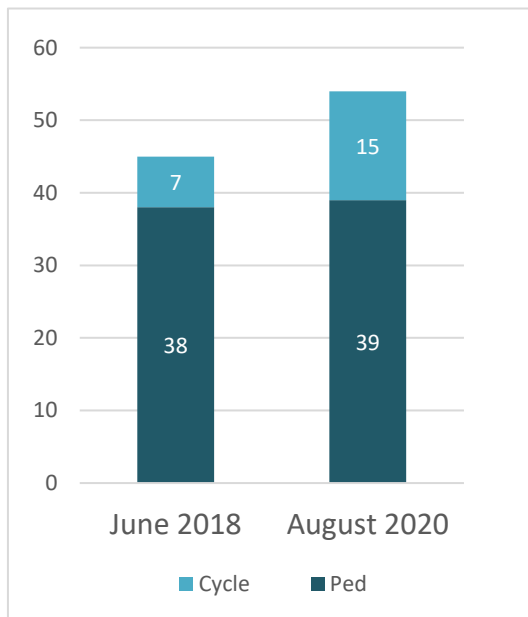
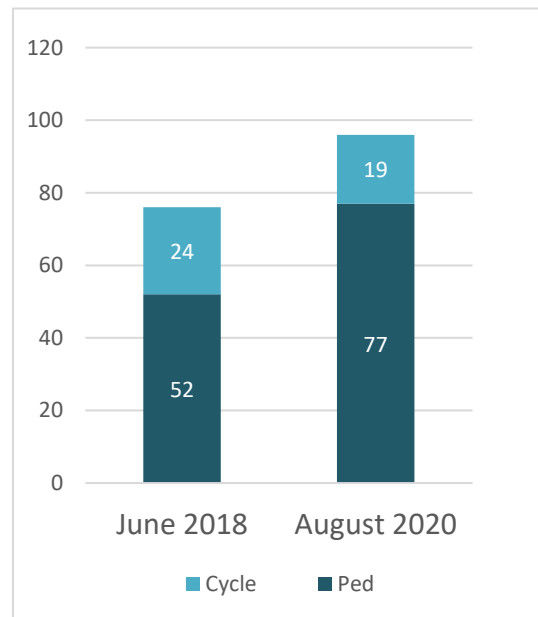


Figure 8 Count of active travel trips from 08:15-09:15 and 16:30-17:30 on one day, in 2018 and 2020, at Park Road



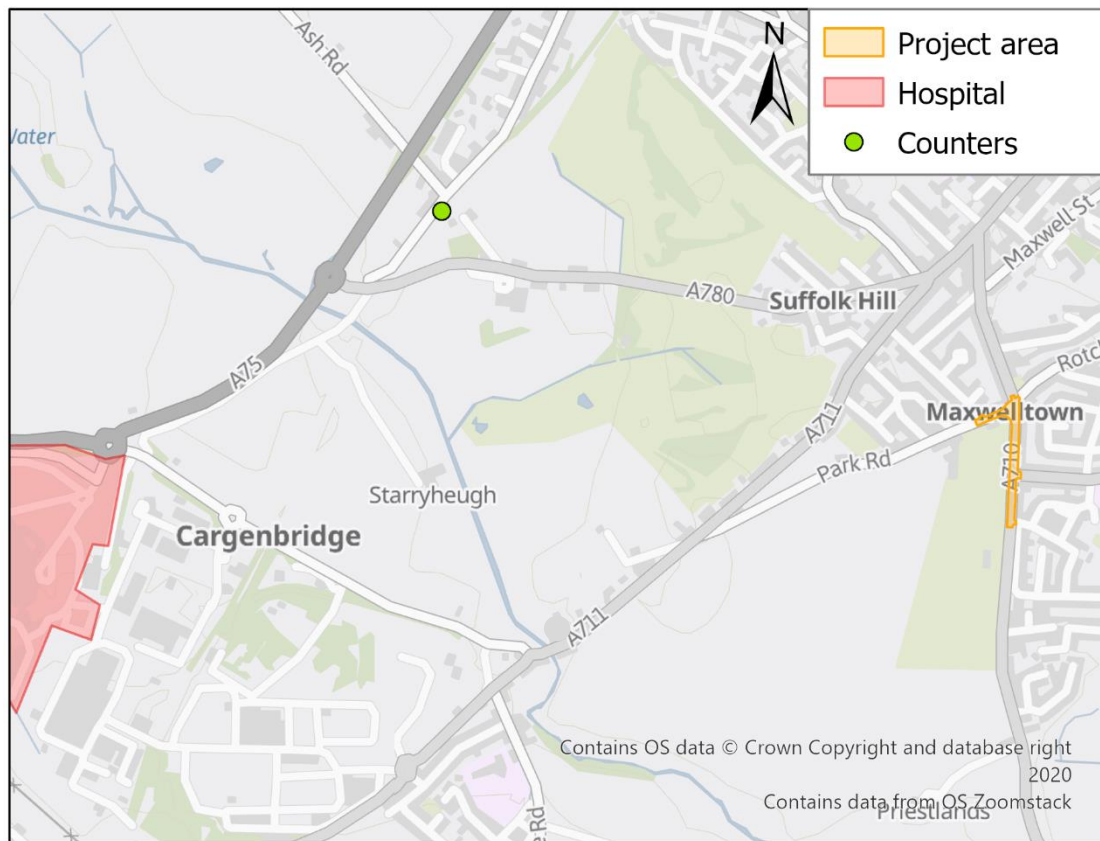
⁴ Both sets of count data were collected on a Tuesday during school term time

3.1.3 Automatic counter data

Data from a nearby automatic counter provides further context to levels of active travel. The counter is situated on route 7 of the National Cycle Network, in Maxwelltown.⁵

Data is only available from November 2021 to April 2022.

Figure 9 Map showing nearby counter



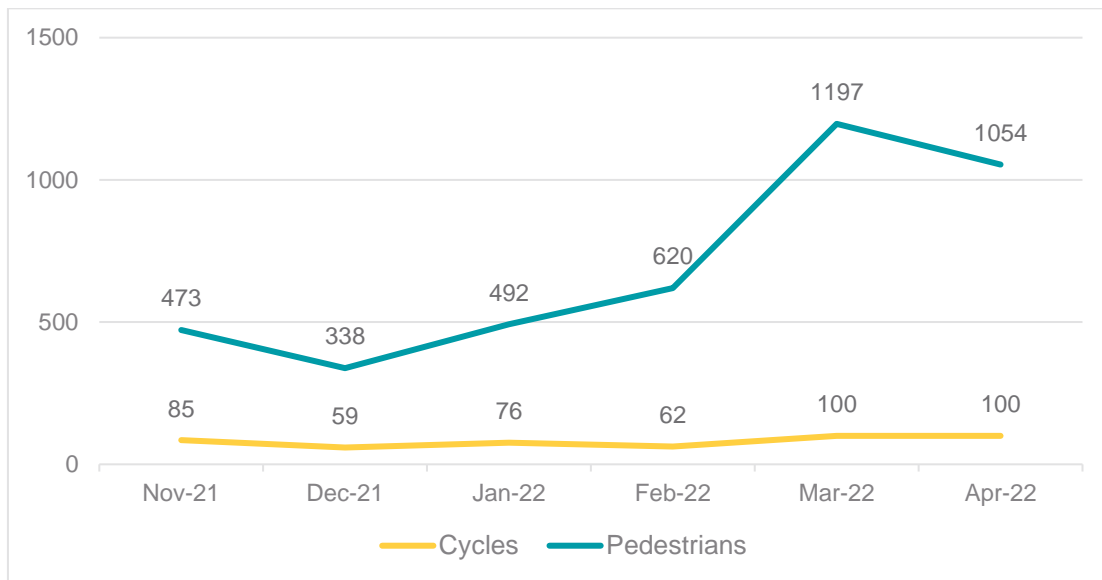
⁵ Data from the counter owned by Cycling Scotland on the A711 near Cargenbridge was not suitable for analysis due to technical errors producing unreliable data.

The counter data allows us to calculate the annual average daily totals for cycles and pedestrians on NCN7 in Maxwelltown (Table 5). Up until the end of April, the average number of cyclists travelling on this section of path per day in 2022 has been 96. The average number of pedestrians has been 833 per day. The counter data also shows there has been a rise in pedestrians since November 2021, while cyclist numbers have remained relatively constant (Figure 10).

Table 5 Annual Median Daily Totals from counter on NCN7 in Maxwelltown

2022		
Annual Average Daily Total	Cycles	96
	Pedestrians	833

Figure 10 Monthly Median Daily Totals from counter on NCN7 in Maxwelltown

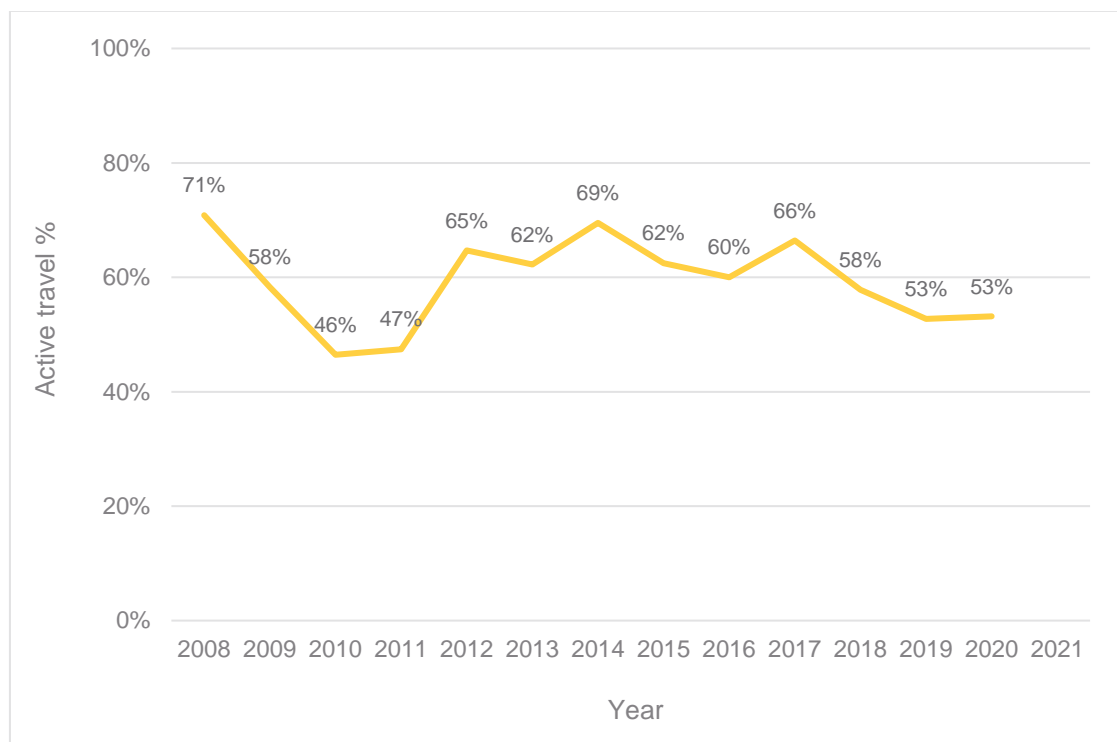


On Park Road / New Abbey Road, where the scheme will be built, we estimated an average of 119 cyclists and 444 pedestrians per day. The counter on the NCN7 in Maxwelltown recorded 96 cyclists and 833 pedestrians per day. We feel these two locations are comparable in terms of cycling usage therefore we may use the Maxwelltown counter as a control site. If cycling levels remain the same at the Maxwelltown counter while cycling levels change on New Abbey Road following the new infrastructure, we can be confident that this change is more likely to be due to the scheme than local trends.

3.1.4 HUSS data (schools)

Active travel levels on the journey to Troqueer Primary School have varied between 71% and 46% since 2008, with a downward trend since 2014. We will add data for 2021 to 2025 to monitor any significant changes after the scheme has been constructed on New Abbey Road.

Figure 11 Hands Up Survey Scotland data from Troqueer Primary School (percentage of pupils walking, cycling or wheeling to school)



3.1.5 Workplace travel

Since 2019, a survey has asked people what mode of transport they use to travel to work at Dumfries & Galloway Royal Infirmary. The survey will continue in future years.

The number of people walking and cycling has stayed between 15% and 18%.

Table 6 Proportion of people travelling to work by different modes at Dumfries & Galloway Royal Infirmary

Mode of transport	2019	2020	2021
Car (drive alone)	72%	73%	61%
Car (shared)	6%	2%	5%
Taxi	1%	2%	2%
Bus	6%	5%	2%
Cycle	10%	14%	11%
E-bike	1%	0%	5%
Walk	4%	0%	2%
Multiple modes	0%	6%	11%
Active travel (cycle + e-bike + walk)	15%	14%	18%
Private motorised travel (car alone + car share + taxi)	79%	76%	68%
<i>Number of survey responses</i>	82	68	44

3.2 Accessibility

As an indicator of how accessible the infrastructure is for everyone, we will monitor the number of wheelchair users who make a journey through the project area. Table 7 shows the baseline figures for each site.

Table 7 Number of wheelchair users over 7 days, 7am-7pm, August 2020

Site	No. of wheelchair users at baseline
Pleasance Avenue (site 1)	3
Park Rd (site 2)	7
Priestlands Drive (site 3)	0
Hospital (site 4)	0
Holm Park (site 5)	2

3.3 Quality, safety and comfort of the space

3.3.1 Use of the verge and pavement

Based on the visible 'desire line' tracks from people walking along New Abbey Road, we decided to record the number of people walking on the unpaved grass verge on the west side of New Abbey Rd. **5% of people used the unpaved grass verge** at the Park Rd junction (site 2)⁶. This figure was 6% at Priestlands Drive (site 3) and 4% at Pleasance Avenue (site 1). Although this is not a high percentage, this is evidence that the unpaved grass verge does get used. The creation of a footway on this side of the road will provide people with a safer and more desirable path.

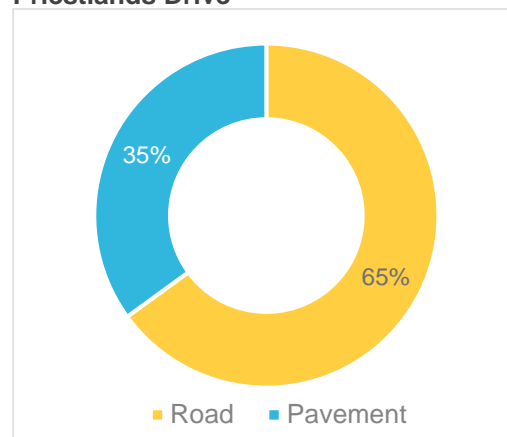
⁶ 195 of 3,569 journeys

Figure 12 Grass verge on New Abbey Road



35% of cyclists avoided cycling on the road at the Priestlands Drive junction (site 3), instead choosing the pavement or grass verge⁷. This figure was 22% at Park Road (site 2) and 18% at Pleasance Avenue (site 2). This suggests that many cyclists do not feel safe with the current road layout, with no dedicated cycle path or lane. The new infrastructure will provide a segregated cycle path on the west side of New Abbey Rd, with the east side remaining as pavement. When we undertake follow-up monitoring, we hope to see pavement cycling drop significantly.

Figure 13 Cyclists using road or pavement along New Abbey Rd, at Priestlands Drive

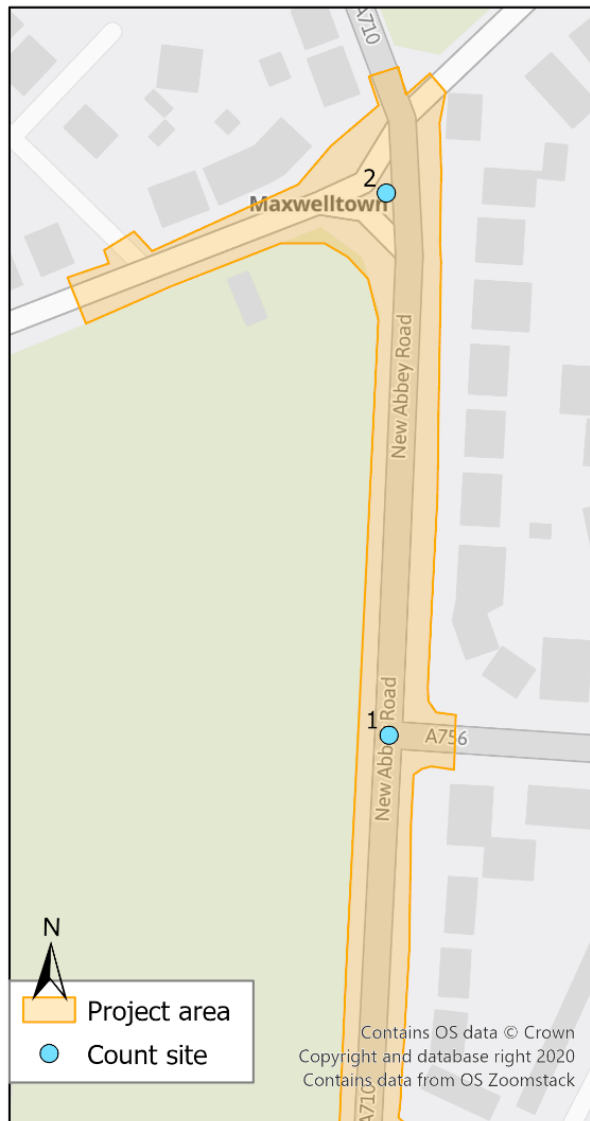


⁷ 137 of 391 journeys

3.3.2 Pedestrian crossing behaviour

At the time of collecting this baseline data, there were no crossing provisions on New Abbey Road (i.e. no zebra crossing, pelican crossing, or crossing islands).

Figure 14 Crossing behaviour analysis locations



Pleasance Avenue (Site 1)

- Over 14 hours (two hours per day) we observed 122 people crossing the junction at Pleasance Avenue.
- No people crossing New Abbey Road were given way to by a vehicle.
- The average waiting time to cross was 24 seconds.
- No conflicts between pedestrians and vehicles were recorded.

Park Road (Site 2)

- We observed 255 people crossing the junction at Park Road
- Of those who encountered a vehicle, 2% were given way to by the vehicle.
- The average waiting time to cross was 6 seconds.
- Two conflicts between vehicles and pedestrians occurred, whereby one or both users slowed down as a precaution in response to another user requiring the same pace.

Overall, these findings indicate that New Abbey Road is relatively safe for pedestrians, but the current infrastructure gives vehicles priority and underprovides for active travel, such as on the grass verge. This could be a deterrent to people walking, wheeling or cycling. After the scheme has been completed, we hope to see more people being given priority when crossing the road.

4. Future Monitoring

Following construction of the new infrastructure on New Abbey Road and a suitable bedding-in period, Sustrans' RMU will revisit the scheme to conduct follow-up monitoring. This will include a repeat of the active travel counts and crossing analysis carried out at baseline. Counts will enable us to measure changes in active travel. We would hope to see an increase in the number of active travel journeys made through New Abbey Road, particularly on the new cycle-path and footpath on the west side. We would also hope to see a rise in active travel at the entrance to the hospital and in Holm Park, suggesting the journeys being made are full journeys to the hospital, or from Holm Park and the town centre.

There will also be a Route User Intercept Survey, which will ask route users for their perceptions and opinions of the new infrastructure. There is the possibility of asking survey participants to compare the new and old infrastructure, to account for the lack of a survey at baseline.

This follow-up monitoring will be set out in a project monitoring plan. The plan will be developed by Sustrans RMU in cooperation with DGC and any other relevant partners.